mated that 8% of women tested will have a positive result, but 6% of these will actually have a fetal abnormality or pregnancy complication diagnosed—that is, 94% false-positives. Follow-up evaluation of a positive test includes repeat testing, ultrasonography and, finally, amniocentesis and is best handled by referral to perinatal specialists. Problems associated with a positive result, other than neural tube defects, include twin gestation, miscalculated gestational age, ventral wall defects (omphalocele and gastroschisis), increased risk of fetal loss and low birth weight. It is hoped that early recognition of these may also prove beneficial.

Family physicians should accurately inform their patients of the above information, make appropriate referrals if a positive result occurs and, most important, be ready and available to offer emotional support to a patient in deciding whether to undergo screening, dealing with a positive screening result and dealing with the follow-up process and its ultimate result.

BERTHOLD E. UMLAND, MD
Albuquerque

KENNETH W. PATRIC, MD
Sacramento, California

REFERENCES

Annas GJ: Is a genetic screening test ready when the lawyers say it is? Hastings Cent Rep 1985 Dec; 15:16-18

Davis RO, Cosper P, Huddleston JF, et al: Decreased level of amniotic fluid α-fetoprotein associated with Down syndrome. Am J Obstet Gynecol 1985 Nov; 153:541-544

Milunsky A, Alpert E: Results and benefits of a maternal serum alpha-fetoprotein screening program. JAMA 1984 Sep 21; 252:1438-1442

Handbook for Prenatal Care Providers, The California Alpha Fetoprotein Screening Program. Berkeley, Calif, California Department of Health Services, Genetic Disease Branch, 1986

Passive Smoking

ALTHOUGH THE HEALTH RISKS of smoking have been known for decades, the dangers of passive (involuntary) smoking have come to light relatively recently. The measurement of plasma, urine and saliva cotinine concentrations has provided us with an accurate and reproducible method of assaying the quantity of tobacco smoke passively inhaled. Through this method, it has been estimated that in a home in which only the father smokes, a child inhales the equivalent of 30 "actively" smoked cigarettes per year. If only the mother smokes, the child inspires the equivalent of 50 actively smoked cigarettes per year and, if both parents smoke, the child smokes 80 cigarettes a year.

Therefore, it is not surprising that the health risks of passive smoking are substantial, particularly in the very young. A number of studies have found decrements in pulmonary function among children of smoking parents as compared with children of nonsmoking parents. Similar studies have found increased rates of bronchitis, pneumonia, persistent middle ear effusion and sudden infant death in children of parents who smoke. There is also some concern that parental smoking may diminish childhood growth but, to date, the data are conflicting.

Adults are not spared the health hazards of passive smoking. Studies have related passive smoking to small airways dysfunction, decreased exercise performance, lung cancer and ischemic heart disease. Passive smoking appears to lower the exercise threshold necessary to produce chest pain in patients with angina pectoris and may trigger asthmatic attacks in some patients who suffer from asthma.

Unlike active smoking, passive smoking largely harms people who choose *not* to smoke; therefore, smokers who cannot relinquish the habit must be educated about the risks of passive smoking and instructed to smoke outdoors or in an area in which other people are unlikely to breathe tobacco smoke. Because the hazards of passive smoking appear to be greatest for children younger than one year of age, this recommendation should be strongly reinforced for parents and those planning a pregnancy.

WILLIAM A. NORCROSS, MD
LEE M. VOGEL, MD
San Diego

REFERENCES

Garland C, Barrett-Connor E, Suarez L, et al: Effects of passive smoking on ischemic heart disease mortality of nonsmokers—A prospective study. Am J Epidemiol 1985 May; 121:645-650

Harlap S, Davies AM: Infant admissions to hospital and maternal smoking. Lancet 1974 Mar 30; 1:529-532

White JR, Froeb HF: Small-airways dysfunction in nonsmokers chronically exposed to tobacco smoke. N Engl J Med 1980 Mar 27; 302:720-723

Urinary Tract Infection in Geriatric Patients

THE INCREASING prevalence of significant bacteriuria with advancing age is of major concern to family physicians caring for geriatric patients. The rate is about 20% in the general ambulatory population aged 65 years and older and rises to 35% to 50% for those confined to hospitals. Possible reasons for this high prevalence in the elderly include obstructive uropathy, decrease of antimicrobial secretions from the prostatic gland, increased amounts of postvoiding residual urine due to prostatic hypertrophy and pelvic floor relaxation, fecal incontinence and soiling in women and a greater likelihood of indwelling catheterization.

The diagnosis of urinary tract infection in all age groups is based on quantitative urine cultures of clean-catch midstream specimens. A "positive" culture is one that grows 10^5 organisms or more per milliliter of urine. One clean-catch urine specimen has an 80% probability of being correctly identified as having significant bacteriuria. Two specimens growing the same organism have a 95% probability, while three specimens are nearly 100% accurate. Proper collection of the urine specimen depends on the individual patient and the adequacy of instructions. While the urine culture is considered the gold standard for diagnosing urinary tract infections, other tests are also available. These include routine urine analysis, Gram's staining, chemical analysis (leukocyte esterase and nitrite) and "dipslide" (Isocult or Uricult) of the urine. The results of these tests are subject to the same influences (urine concentration, collection, handling and preparation) as the urine culture, but have less sensitivity and specificity.

The most common infecting organisms are aerobic Gram-negative bacilli from the gut. *Escherichia coli* cause about 80% of urinary tract infections in the elderly. Another 10% to 15% of infections are caused by *Proteus, Klebsiella* and *Enterobacter* organisms; the remaining 5% to 10% are due to such pathogens as *Pseudomonas,* staphylococcal organisms and group D streptococci.

Urinary tract infections in the elderly may include the traditional symptoms of frequency, dysuria, hesitancy, urgency and nocturia. But acute confusional state, mental state changes or incontinence may also be the presenting complaints. Moreover, most of these infections in older adults are

asymptomatic. Because bacteriuria in older adults has been associated with an increased mortality rate, these diagnostic screening methods are of clinical importance.

The management of asymptomatic bacteriuria in the elderly is subject to debate and is under further investigation. Limited treatment trials with antibiotics for asymptomatic bacteriuria in geriatric patients have had high recurrence rates. On the other hand, any geriatric patient with symptomatic bacteriuria (bacteriuria and symptoms of infection) should be treated. Current treatment recommendations include 7 to 14 days of therapy with a safe, nontoxic, easily filtered drug such as the penicillins, cephalosporins, short-acting sulfonamides, tetracycline, trimethoprim or trimethoprim-sulfamethoxazole after the infectious agent is identified by urine culture. While single-dose and short-course antibiotic regimens have been therapeutically effective in healthy young women with uncomplicated lower urinary tract infections, this approach in the elderly has had unacceptably high rates of failure in recent studies. When bacteremia may be present, parenteral therapy with antibiotics such as aminoglycosides and cephalosporins should be used. After the pathogen is identified, the regimen can be changed to a safer appropriate drug. Elderly patients with structural abnormalities of the urinary tract, such as calculi, or chronic bacterial prostatitis may become reinfected, usually within one to two weeks. These patients who quickly relapse need to be evaluated further. If no structural abnormalities are found, then a three- to six-week course of therapy is recommended.

Long-term prophylactic therapy with trimethoprim (alone or in combination with sulfamethoxazole) for frequent symptomatic reinfection has been used successfully; urine cultures, however, should be done frequently and the antibiotic changed if bacteriuria recurs. Patients with indwelling catheters should have periodic urine cultures to identify the current infecting organism. Extended chemoprophylaxis for this group of patients does not prevent infection and risks drug-resistant sepsis.

KLEA D. BERTAKIS, MD, MPH
Sacramento, California

REFERENCES

Bendall MJ: A review of urinary tract infections in the elderly. J Antimicrob Chemother 1984 May; (Suppl 13):69-78

Brocklehurst JC, Dillane JB, Griffiths L, et al: The prevalence and symptomatology of urinary tract infection in an aged population. Gerontol Clin 1968; 10:242-253

Nordenstam GR, Brandberg CA, Oden AS, et al: Bacteriuria and mortality in an elderly population. N Engl J Med 1986 May; 314:1152-1156

Yoshikawa TT: Important infections in elderly persons. West J Med 1981 Dec; 135:441-445

Assessing the Fetal-Placental Unit

MANY COMMON COMPLICATIONS of pregnancy, notably, gestational diabetes, pregnancy-induced hypertension and postmaturity, adversely affect the placenta and thereby place a fetus's ability to tolerate labor in jeopardy. Over the past two decades, numerous techniques have evolved for assessing the status of the fetal-placental unit; yet, until recently these techniques have often been costly, cumbersome and time-consuming.

Maternal urine or serum estriol determinations are sensitive predictors of fetal-placental function. Their appropriate use, however, requires serial determinations, often over a period of several days or weeks, and can incur considerable expense. Oxytocin contraction testing also is a reliable predictor of fetal-placental function, yet the need for intravenous administration of medication makes this process technically cumbersome. Non-stress testing, which has generally supplanted the oxytocin contraction testing as an initial screening device, is a reasonable predictor of fetal well-being but may less reliably predict fetal-placental function, particularly during the stress of labor. Maternal perception of fetal movement has long been recognized as an indicator of fetal well-being, and there have been recent efforts to develop fetal movement count protocols. Such counts are best used as a qualitative screening assessment with other more quantitative techniques used to more precisely assess fetal status.

Two more recently developed screening techniques appear to provide rapid and accurate assessment of fetal-placental function. Ultrasonic determination of amniotic fluid volume is one such technique. While the volume of amniotic fluid normally diminishes as the pregnancy approaches term, a finding of significant oligohydramnios is a specific predictor of poor placental function, particularly in a postmature pregnancy. It appears also that the presence of spontaneous fetal respirations detected on real-time ultrasound is predictive of fetal well-being.

Mammary self-stimulation contraction stress testing is a second new technique for assessing fetal-placental function. Breast self-stimulation can safely produce sufficient oxytocin secretion to stimulate contractions that satisfy standard criteria for a contraction-stress study. The test, effective in about 60% of women, is rapid—generally requiring less than half the time of a standard oxytocin contraction test—reliable and well accepted by patients.

MICHAEL D. PRISLIN, MD
Irvine, California

REFERENCES

Hausknecht RU: Estriol and fetal health. Obstet Gynecol 1967 Nov; 30:639-645

MacMillan JB, Hale RW: Contraction stress-testing with mammary self-stimulation. J Reprod Med 1984 Apr; 29:219-221

Pratt D, Diamond F, Yen H, et al: Fetal stress and non-stress test: An analysis and comparison of their ability to identify fetal outcome. Obstet Gynecol 1979; 54:419-423

Rayburn WF, Motley ME, Stempel LE, et al: Antepartum prediction of the postmature infant. Obstet Gynecol 1982; 60:148-153

Sorokin Y, Dierker LJ Jr: Fetal movement. Clin Obstet Gynecol 1982; 25:719-734

Tuberculosis in Nursing Homes

EVEN THOUGH the incidence of tuberculosis for all ages has declined yearly since before 1900, elderly persons now account for the largest proportion of tuberculosis cases of any age group. The predominance of cases in the elderly has been attributed to reactivation of previous infections that occurred when tuberculosis was much more prevalent. The high incidence in the elderly cannot be explained by the increase in the proportion of people in the population older than 65. Factors contributing to this problem include the delay of diagnosis due to atypical clinical presentations of reactivated infections and impaired immunologic responsiveness associated with advancing age and many chronic diseases.

Stead and co-workers have shown that newly acquired cases of tuberculosis can occur in nursing homes. There have been several reports of tuberculosis epidemics among residents of nursing homes, and the predisposing factor has been close living quarters that allows dissemination. Stead showed that in Arkansas 10% to 15% of persons newly admitted to